

**Amendments to the Claims**

Please amend claims 1, 17 and 19 as indicated in the listing of claims.

Please cancel claims 16, 20 and 21 without prejudice or disclaimer.

The listing of claims will replace all prior versions, and listings of claims in the application.

**Listing of Claims:**

1. (Currently amended) A method comprising:  
forming a structure attached to a micro-fluidic channel based on hydrodynamic focusing using a hydrodynamically focused fluid and a focusing fluid; and  
selectively promoting polymerization in a portion of the hydrodynamically focused fluid by selectively exposing the portion to an electromagnetic radiation to form the structure having a first dimension that is based on hydrodynamic focusing and a second dimension that is based on a patterned mask.
2. (Previously presented) The method of claim 1, wherein forming the structure comprises solidifying the hydrodynamically focused fluid inside the channel.
3. (Original) The method of claim 2, wherein solidifying comprises polymerizing the hydrodynamically focused fluid.
4. (Original) The method of claim 3, further comprising promoting polymerization by exposing the hydrodynamically focused fluid to ultraviolet radiation.
5. (Canceled)
6. (Original) The method of claim 1, wherein forming the structure comprises forming a plurality of coatings attached to walls of the channel.
7. (Previously presented) The method of claim 6, wherein forming the coatings comprises forming a coating having a greater compatibility than that of the wall of the channel.

8. (Original) The method of claim 7, wherein forming the coating having the greater compatibility comprises forming a coating having a greater biocompatibility than that of the wall of the channel.
9. (Original) The method of claim 8, wherein forming the biocompatible coating comprises forming a biocompatible anti-fouling coating.
10. (Original) The method of claim 9, further comprising flowing a fluid containing a biological molecule in the channel containing the biocompatible anti-fouling coating.
11. (Original) The method of claim 8, wherein forming the biocompatible coating comprises forming a biocompatible affinity coating containing a binding material.
12. (Original) The method of claim 8, further comprising flowing a fluid containing a biological molecule in the channel containing the biocompatible affinity coating; and binding the biological molecule to the binding material of the biocompatible affinity coating.
13. (Original) The method of claim 1, wherein forming the structure comprises forming an internal divider wall.
14. (Original) The method of claim 13, further comprising tailoring a permeability of the divider wall to a molecule.
15. (Original) The method of claim 14, further comprising performing a separation by permeating the molecule across the internal divider wall.
16. (Canceled)
17. (Currently amended) The method of claim ~~16~~ 1, wherein forming the structure comprises forming a pillar having a width that is based on hydrodynamic focusing and a length that is based on the patterned mask.
18. (Canceled)

19. (Previously presented) A method comprising:  
introducing a polymerizable fluid and a focusing fluid into a hydrodynamic focusing system having a micro-fluidic channel;  
hydrodynamically focus the polymerizable fluid with the focusing fluid within the micro-fluidic channel;  
selectively promoting polymerization in a portion of the hydrodynamically focused polymerizable fluid by selectively exposing the portion to an electromagnetic radiation based on a patterned mask; and  
forming a structure having a first dimension that is based on hydrodynamic focusing and a second dimension that is based on the patterned mask attached to the micro-fluidic channel in the hydrodynamic focusing system by polymerizing the exposed portion of the hydrodynamically focused polymerizable fluid.

Claims 20-21. (Canceled)

22. (Original) The method of claim 21, wherein forming the structure comprises forming a pillar having a width that is based on hydrodynamic focusing and a length that is based on the patterned mask.
23. (Original) The method of claim 19, wherein forming the structure comprises forming a plurality of coatings attached to walls of the channel.
24. (Original) The method of claim 19, wherein forming the structure comprises forming an internal divider wall.
25. (Original) The method of claim 19, further comprising performing a separation by permeating a molecule across the internal divider wall.

Claims 26-33. (Canceled)